WHAT IS CLAIMED IS:

1. A method of removing a nucleic acid probe from a sample nucleic acid comprising:

a) obtaining a sample nucleic acid associated with a nucleic acid probe;

b) breaking at least a first bond of the nucleic acid probe; and

c) removing the nucleic acid probe from said sample nucleic acid.

2. The method of claim 1, wherein said nucleic acid probe comprises DNA.

3. The method of claim 1, wherein said nucleic acid probe comprises RNA.

4. The method of claim 1, wherein said nucleic acid probe comprises at least a first uracil residue.

5. The method of claim 1, wherein said first bond is a phosphodiester bond.

6. The method of claim 1, wherein said first bond is a phosphorothioate bond.

7. The method of claim 6, wherein said first bond is broken by iodine.

8. The method of claim 7, wherein the concentration of said iodine is between about 0.1 mM and about 25 mM.

9. The method of claim 1, wherein said first bond is broken by a hydroxyl ion.

10. The method of claim 9, wherein the concentration of said hydroxyl ion is between about 10^{-1} M and about 10^{-5} M.

11. The method of claim 1, wherein said first bond is broken by an enzyme.

12. The method of claim 11, wherein said first bond is broken by uracil DNA glycosylase in conjunction with an exonuclease.

13. The method of claim 11, wherein said first bond is broken by a ribonuclease.

14. The method of claim 13, wherein said first bond is broken by inosine ribonuclease.

15. The method of claim 11, wherein said first bond is broken by a deoxyribonuclease.

16. The method of claim 1, wherein said first bond is broken by light.

17. The method of claim 1, wherein said first bond is broken by temperature.

18. The method of claim 1, wherein said sample nucleic acid comprises DNA.

19. The method of claim 1, wherein said sample nucleic acid comprises RNA.

20. The method of claim 1, comprising attaching said sample nucleic acid to a solid support.

21. The method of claim 20, wherein said solid support is a membrane.

22. The method of claim 21, wherein said membrane is a nitrocellulose membrane or a nylon membrane.

23. The method of claim 20, wherein said solid support is a resin.

24. The method of claim 23, wherein said resin is an ion exchange chromatography resin or an affinity chromatography resin.

25. The method of claim 20, wherein said solid support is plastic.

26. The method of claim 20, wherein said solid support is a magnetic bead.

27. The method of claim 20, wherein said solid support is glass.

28. The method of claim 20, wherein said solid support is a microchip.

29. The method of claim 20, comprising separating said sample nucleic acid by electrophoresis prior to attachment to said solid support.

30. The method of claim 29, comprising cleaving said sample nucleic acid by an enzyme prior to separation by electrophoresis.

31. The method of claim 1, wherein obtaining a sample nucleic acid associated with a nucleic acid probe comprises:

a) obtaining a sample nucleic acid;

b) obtaining a nucleic acid probe; and

c) admixing said nucleic acid probe with said sample nucleic acid to allow association of said nucleic acid probe with said sample nucleic acid.

32. The method of claim 31 comprising attaching the sample nucleic acid to a solid support prior to admixing the nucleic acid probe with the sample nucleic acid.

33. A method of stripping a nucleic acid probe from a sample nucleic acid, said sample nucleic acid attached to a solid support, comprising:

a) obtaining a solid support with a sample nucleic acid attached thereto;

b) obtaining a nucleic acid probe, said nucleic acid probe comprising at least a first phosphorothioate bond;

c) admixing said nucleic acid probe with said solid support to allow association of said nucleic acid probe with said sample nucleic acid;

d) cleaving said phosphorothioate bond of said nucleic acid probe with iodine;

e) removing said nucleic acid probe from said sample nucleic acid; and

f) admixing sodium thiosulfate with said solid support, thereby removing excess iodine from said solid support.

34. A kit for removing a nucleic acid probe from a sample nucleic acid, comprising in a suitable container a compound that breaks at least a first bond of said nucleic acid probe.

35. The kit of claim 34, wherein said compound is a chemical.

36. The kit of claim 35, wherein said chemical is iodine.

37. The kit of claim 34, wherein said compound is an enzyme.

38. The kit of claim 37, wherein said enzyme is uracil DNA glycosylase in conjunction with an exonuclease.

39. The kit of claim 34, further comprising at least a first cleavable nucleotide for incorporation into said nucleic acid probe.

40. The kit of claim 39, wherein said cleavable nucleotide is a phosphorothioate nucleotide.

41. The kit of claim 39, wherein said cleavable nucleotide is a uracil nucleotide.

42. The kit of claim 39, wherein said cleavable nucleotide is an inosine nucleotide.

43. A kit for removing a nucleic acid probe from a sample nucleic acid, comprising, in a suitable container:

a) probe degradation buffer; and

b) reconstitution buffer.

44. The kit of claim 43, wherein said probe degradation buffer comprises iodine.

45. The kit of claim 43, wherein said kit further comprises, in one or more suitable containers:

a) at least a first cleavable nucleotide triphosphate;

b) a nucleotide mixture; and

c) a nucleotide polymerase.

46. A kit for removing a nucleic acid probe from a sample nucleic acid, comprising, in a suitable container:

a) probe degradation buffer comprising iodine;

b) reconstitution buffer comprising sodium thiosulfate;

c) nucleotides;

d) a nucleic acid polymerase;

e) RNase inhibitor; and

f) transcription buffer.

47. A kit for detecting the association of a nucleic acid probe with a sample nucleic acid, comprising in a suitable container a solid support and a compound that breaks at least a first bond of said nucleic acid probe.